Farm Safety

Standards of Practice

Canadian Coalition for Agricultural Safety and Rural Health
Coalition canadienne pour la sécurité agricole et la santé rurale

NSFA
Nova Scotia Federation of Agriculture

Farm Health and Safety

Nova Scotia Farm Health and Safety Committee

NOVA SCOTIA
Agriculture and Marketing
Department of Labour

Agriculture and Agri-Food Canada
Agriculture et Agroalimentaire Canada

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The Occupational Health and Safety Act applies to all Nova Scotia farmers regardless of the number of people employed on the farm. The Act specifically states the duties of an employer and a self-employed person.

The "Standards of Practice for Farms in Nova Scotia and Risk Management Tool" is provided to you as a project of the Nova Scotia Farm Health and Safety Committee and the assistance of the organizations acknowledged below.

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NOVA SCOTIA Agriculture and Marketing Department of Labour

Agriculture and Agri-Food Canada / Agriculture et Agroalimentaire Canada

Canadian Coalition for Agricultural Safety and Rural Health / Coalition canadienne pour la sécurité agricole et la santé rurale

NSFA Nova Scotia Federation of Agriculture

FARM HEALTH AND SAFETY Nova Scotia Farm Health and Safety Committee

Disclaimer: The information in this manual is intended to provide farm owners and managers with an overview of occupational health and safety requirements in the province of Nova Scotia. The manual refers to the Occupational Health and Safety Act and various regulations made under the Act. Although every attempt is made to ensure that the information provided is accurate, the manual is not intended to be comprehensive and it is not intended to serve as legal advice. The document is prepared for convenience only. The information contained in the manual is only current to February 2000. Any changes that were made to the Occupational Health and Safety Act or regulations after February 2000 have not been captured in this manual.

If you have further questions or occupational health and safety matters, please contact the Occupational Health and Safety Division of the Nova Scotia Department of Labour.

STANDARDS OF PRACTICE FOR FARMS IN NOVA SCOTIA

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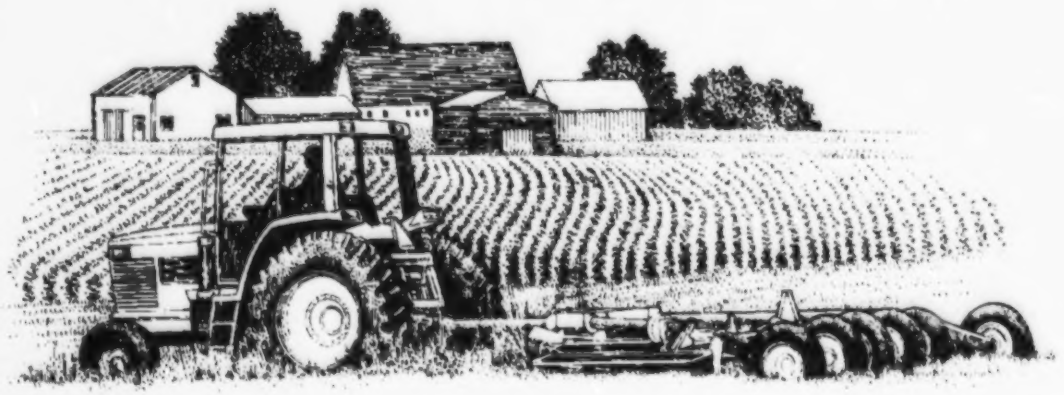


A safe farm workplace is created when everyone takes a role in managing health and safety issues.

It is a well documented fact that good safety management leads to increased productivity. A good safety management program can help avoid farm accidents that are costly, time consuming, stressful and inconvenient. The only way to avoid the cost and the litigation that may be associated with farm accidents is to prevent accidents.

There are five simple principles which can guide your approach to a safe farm workplace.

- **Farm safety is everyone's responsibility.**
- **Risk is part of life, simply because people and technology are not perfect.**
- **Risk can be reduced by paying attention to the cause of accidents and changing work habits.**
- **There is usually more than one way to prevent an accident.**
- **Our perception of risk is not always accurate.**

The best safety outcomes are achieved through a planned approach to identifying and dealing with hazards. A hazard is any situation, activity, procedure, piece of equipment/machinery or animal that may cause injury or harm to a person. Hazards in the farm workplace include:

- **Work environments (light, noise, rain, heat, sun)**
- **Substances (chemicals, fuels, dust)**
- **Workplace layout (work space)**
- **Work organization (unnecessary handling)**
- **Machinery and Equipment (moving equipment and tools)**
- **Farm animals (handling)**
- **Heights (silos and lofts)**
- **Electricity (switches, cables and connections)**

Everyone associated with the farm workplace should always be on duty spotting hazards. Following are some guidelines to assist in spotting hazards on your farm.

- ***Observation*** – Use your sense of sight, smell, touch and hearing coupled with common sense, knowledge and experience to identify potential hazardous situations.

- ***Manuals and safety sheets*** – Obtain and read carefully manuals and safety sheets provided by equipment and machinery manufacturers and ensure employees read them. These materials can assist in the identification of hazards and they specify the precautions that need to be taken for the safe operation of equipment and tools and the safe handling of substances.

- ***Children and visitors*** – Pay special attention to areas and activities that may involve or expose children and visitors to hazardous situations.
- ***Record analysis*** – Keep records of identified hazards, near misses and injuries to help identify possible trends.
- ***Stay tuned*** – to the most up-to-date safety information and procedures and what is happening in the work place.
- ***Risk management tools*** – Use this manual and the accompanying risk management tool to identify and man age hazards in the workplace.
- ***Legislation and Regulations*** – Become familiar with the *Nova Scotia Occupational Health and Safety Act and General Safety Regulations.*

The *Nova Scotia Occupational Health and Safety Act* outlines the processes and procedures that must be put in place on your farm to create a safe workplace; its accompanying Regulations specify how those processes and procedures must be implemented. These important documents can be obtained from the Nova Scotia Department of Labor by calling toll free 1-800-952-2687

A SIMPLE EQUATION FOR CREATING A SAFER WORKPLACE

Once a hazard has been identified, the next step is to manage the risk(s) associated with the hazard. Risk is simply the chance that an existing hazard may actually cause injury or damage. Managing risk entails taking the steps necessary to reduce or eliminate the risk associated with an identified hazard as suggested below in Figure 1.1. Remember, the majority of farm accidents are due to risks that individuals who work in farm environments everyday take for granted or consider routine and unimportant.

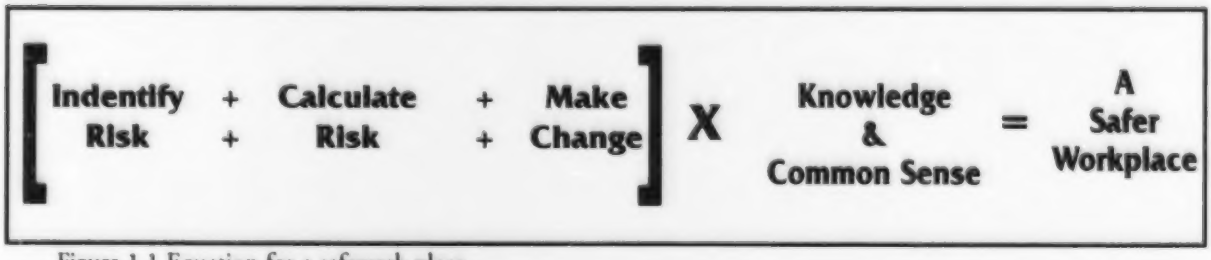


Figure 1.1 Equation for a safework place

Once a hazard has been identified and the risk has been assessed, changes can be made to control or eliminate the hazard. Changes can be implemented in descending levels of importance as suggested below in Figure 1.2.

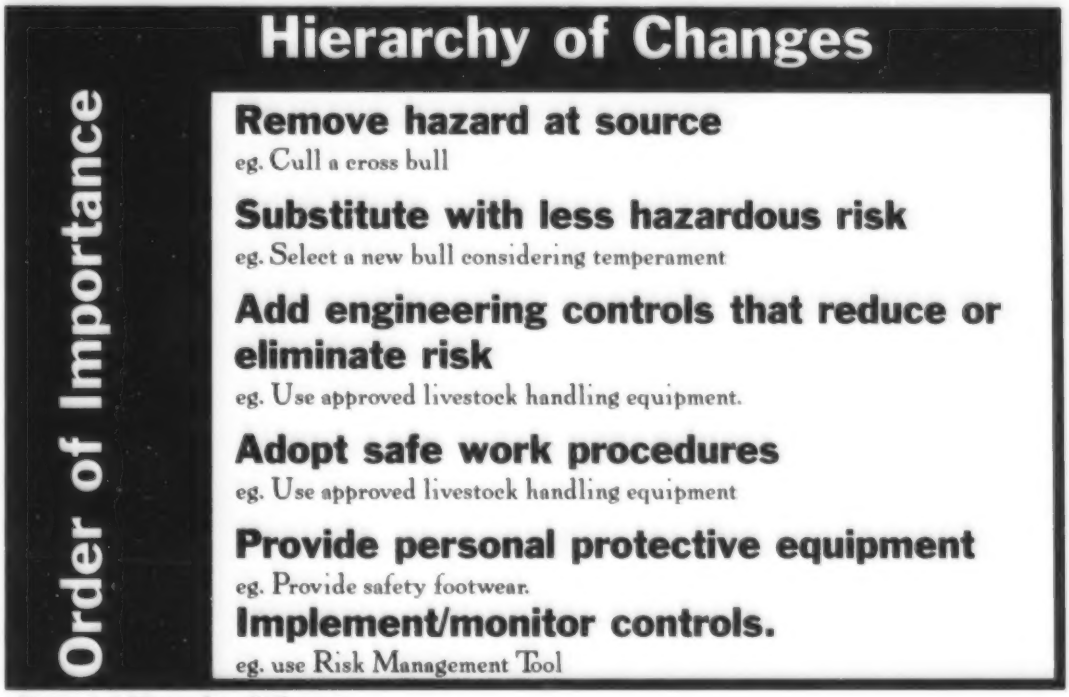

Hierarchy of Changes
Order of Importance
Remove hazard at source
eg. Cull a cross bull
Substitute with less hazardous risk
eg. Select a new bull considering temperament
Add engineering controls that reduce or eliminate risk
eg. Use approved livestock handling equipment.
Adopt safe work procedures
eg. Use approved livestock handling equipment
Provide personal protective equipment
eg. Provide safety footwear.
Implement/monitor controls.
eg. use Risk Management Tool

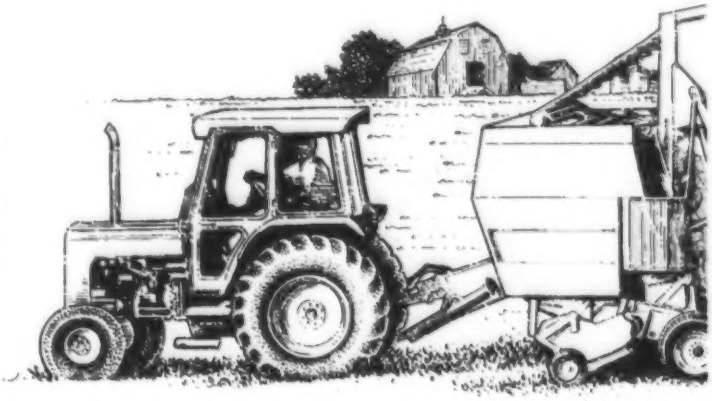
Figure 1.2 Hierarchy of Changes

MANAGING SAFETY ON YOUR FARM

Managing farm safety is an ongoing task for everyone who lives, works or visits your property. There are no short cuts and there are no excuses when it comes to ensuring the safety of employees, family and visitors. The best way to manage safety issues on your farm is through the development of a planned approach.

HOW TO BEGIN:

To begin the development of a planned approach to farm safety you will need to do an assessment of how safety issues are currently dealt with on your farm. To assess the current safety management on your farm you can use the mini safety audit below.



	Yes	No
Do you practice regular monitoring of equipment, machinery and tasks for potential hazards	☐	☐
Do you keep a list of safe procedures for farm tasks?	☐	☐
Is safety information readily available for equipment and hazardous substances and procedures?	☐	☐
Do you provide training and practice for new tasks, machinery and equipment	☐	☐
Is protective clothing and equipment available to employees?	☐	☐
Are safety issues discussed with employees and contractors on a regular basis?	☐	☐
Are you familiar with your legal obligations with respect to occupational health and safety?	☐	☐

Figure 1.3 Mini Safety Audit

DEVELOPING A SAFETY MANAGEMENT PLAN

A safety management plan can be based on the points covered in the Mini Safety Audit, Figure 1.3 above, giving priority to any areas where you have checked 'No'. A good safety management plan is first, the product of discussion with employees and others who may frequent the workplace, and, second it involves a comprehensive examination of all hazards and associated risks that exist in the workplace. The information provided in this manual will assist you in identifying those hazards and putting procedures in place to deal with the associated risks. Your plan should cover the following areas:

- **Providing employees with information on workplace hazards and how to reduce the associated risks.**
- **Providing training for new employees.**
- **Providing safety training with new machinery and new tasks.**
- **A system for documenting accidents and hazardous situations.**
- **A system for managing farm safety on an ongoing basis.**

[illegible]

The principal purpose of this manual is to help you identify the areas on your farm that may pose a risk to you, your family and your employees. Dealing with the areas covered in this manual can also help ensure that your farm business will meet the occupational health and safety obligations set out in Nova Scotia's *Occupational Health and Safety Act* and *General Safety Regulations.*

The *Risk Management Tool* that accompanies this manual is designed to assist you in managing farm safety issues on an ongoing basis. Using these two tools together; the manual to identify potential risk, and the *Risk Management Tool* to manage those risks on regular basis you will: 1) create a safer workplace for everyone who comes in contact with your workplace; 2) help protect your self, your family and your employees from serious injury; and, 3) comply with many of the legal obligations imposed by Legislation and Regulation.

HOW TO USE THE FARM SAFETY CHECK LIST WORKSHEETS

Almost every situation in the farm workplace has the potential to cause serious injury or death. Every farm business owner/manager has a responsibility to do everything in his/her power to control and manage the risks that are inherent in the farm workplace. Farm business owner/managers must take this responsibility seriously and do everything in their power to minimize the possibility of injury, since they may be held liable for any accidents that do take place. Even if the existence of a conscientious risk management strategy fails to prevent injury, it will aid in the demonstration of due diligence.

The clip board and Risk Management Worksheets that accompany *"Standards of Practice for Farms in Nova Scotia"* are intended to assist you in implementing a systematic risk management plan for each area of activity on your farm. The check list work sheets have been designed to enable farm operators and managers to monitor key safety issues on a monthly or bi-monthly basis. A more detailed version of the worksheet check lists can be obtained by contacting The Nova Scotia Federation of Agriculture or the Nova Scotia Department of Agriculture and Marketing.

The worksheets that have been provided with your *Risk Management Tool* have been designed to cover areas common to most farms in Nova Scotia; however, blank sections have been included to allow for areas that are not specifically listed and/or areas that may be of specific concern to you and your employees. Carefully reading the *Standards of Practice for Farms in Nova Scotia* will assist you in identifying the areas with which you should be most concerned. You can receive further assistance by contacting The Nova Scotia Federation of Agriculture or the Nova Scotia Department of Agriculture and Marketing.

Complete Instructions for using the Risk Management Worksheets can be found on the front of your clip board.

THE OCCUPATIONAL HEALTH AND SAFETY ACT - AN OVERVIEW

Introduction

This Section deals with the elements of the *Occupational Health and Safety Act* (OHSA) that are most relevant to farmers and those that they employ. The following Sections in this manual relate to specific safety issues and the regulations that apply to those issues.

Who is Responsible for Health and Safety on the Farm?

The *Occupational Health and Safety Act* makes self-employed farmers, farm managers, employers, employees and contractors all responsible for safety in the farm workplace. This includes people who may be working the farm business or working on their own property. Each person working on the farm is responsible, to the extent of their authority, for the health and safety of everyone on the farm. The OHSA refers to this as the "internal responsibility system."

Employer's Duties

Section 13 of the OHSA lists the duties and precautions for employers. These General Duties state: ***Employers are responsible to take every reasonable precaution to protect the health and safety of any person on or near the workplace. Employers must protect the health and safety of their employees and must:***

- **provide and maintain machinery, equipment and materials in a safe condition;**
- **provide adequate information, instruction and training to enable employees to work safely;**
- **ensure employees are adequately supervised;**
- **ensure employees are familiar with any health and safety hazards on the farm;**
- **ensure employees are familiar with the proper use of all devices, equipment and clothing required for their protection; and**
- **consult with employees on health and safety matters.**

Providing Information:

Employers must make the following items available to employees at the workplace. Information must be posted in a prominent place:

- **a current copy of the Act and relevant regulations;**
- **information and reports recommended by an Occupational Health and Safety Officer;**
- **relevant "Code of Practice";**
- **telephone number to report workplace incidents; and (1-800-952-2687) N.S. Dept of Labour**
- **Occupational Health and Safety Policy; if one is required.**
  (Section 27, Occupational Health and Safety Act)

Consultation and Co-operation

Cooperation and discussion are the keys to safety and health in the workplace. Employers and employees must consult one another to resolve safety and health problems. *The Occupational Health and Safety Act* includes a number of requirements to formalize communication on health and safety issues. Read the *Occupational Health and Safety Act* and *Occupational Safety General Regulations* to determine the requirements for your farm business.

Occupational Health and Safety Policy

Any farmer or other employer who has five or more regularly employed persons, must prepare an Occupational Health and Safety Policy. The policy must be in writing and it must be reviewed every year. **Information on what must be contained in the policy and how it should be prepared can be found in the *Occupational Health and Safety Act*, Section 27.**

Health and Safety Representatives

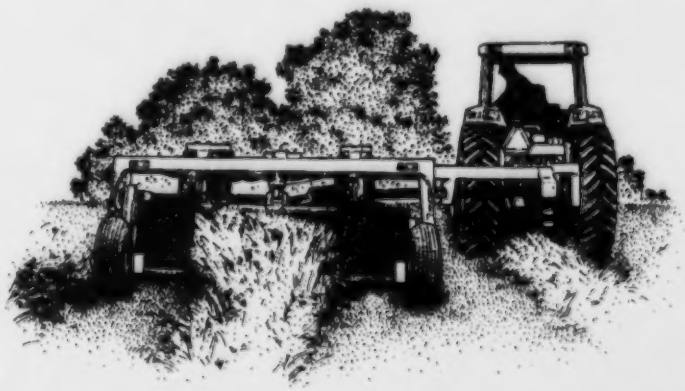
In every workplace that has five or more regularly employed persons (but less than twenty), the employees must be entitled to select a health and safety representative from among the employees at the workplace. **Information on the responsibilities of the representative and the employer can be found in the *Occupational Health and Safety Act*, Section 33.**

List of Chemicals

Employers must prepare a list of all chemical substances, in the workplace, which may be a hazard to the health or safety of employees. The list must include the chemical trade name, address of the supplier and manufacturer, chemical composition and common or generic name. The list must be available to all employees. **Information on chemicals can be found in the *Occupational Health and Safety Act*, Section 59.**

Owner's Duties

Where a farmer owns land but does not operate the farm, she/he still has specific duties in the context of occupational health and safety. The farmer-owner must take every reasonable precaution to ensure the land that is being used is maintained in a manner that ensures the health and safety of persons on or near the farm. If the owner has any information that may be necessary to identify or eliminate hazards on the property, he or she must provide that information to the employer. **Information on owner's duties can be found in the *Occupational Health and Safety Act*, Section 19.**



Employee's Duties

Employees (including dependent contractors), while they are at work, must take reasonable care to protect their own safety and health, as well as that of others on or near the farm operation. To ensure health and safety, employees must cooperate with their employer and must:

- **use protective devices, equipment and clothing required by the employer;**
- **consult and cooperate with the employer and other employees on workplace health and safety; and**
- **report any potential workplace hazards or dangers to a supervisor and if the concerns are not addressed, report to other appropriate employees or to the Department of Labour.**

Further information on the duties of employees can be found in the *Occupational Health and Safety Act*, Section 17.

Self-employed Persons' Duties

A self-employed person working on a farm is required to take the same precautions that an employee would take to protect themselves and others who may be affected by their activities. Self-employed persons are also required to cooperate with an employer or anyone else engaged in occupational health and safety activities on the farm. **Further information on the duties of self–employed persons' can be found in the *Occupational Health and Safety Act*, Section 18.**

Supplier's Duties

A supplier is any person who manufactures, supplies, sells, leases, distributes or installs tools, equipment, machinery, devices or biological, chemical or physical agents. Suppliers are responsible to ensure that anything they supply is in safe condition and properly labeled. **Further information on supplier's duties can be found in the *Occupational Health and Safety Act*, Section 16.**

Joint Occupational Health and Safety Committees

Every workplace that has twenty or more regularly employed persons must have at least one Ooccupational Health and Safety Committee. The employer is responsible to ensure that the committee is established and to ensure the information on the committee is made available to the employees. **Further information on how the committee is to be created and how it will function can be found in the *Occupational Health and Safety Act*, Section 29.**

Where a farmer has more than one farm site, a committee is only required for the individual sites that have twenty or more employees.

ISSUES IN THE WORKPLACE

Workplace Monitoring and Measurement

Employers must permit a selected employee to observe workplace occupational health and safety monitoring, sample taking and measurements. Examples of the type of testing included are, air and noise tests, and tests on safety devices. The Risk Management Tool that accompanies the *Standards of Practice for Farms in Nova Scotia* provides checklists to assist farm businesses in managing safety issues on the farm.

Right to Refuse Work

Employees may refuse to do work which they have reasonable grounds to believe would endanger their health or safety, or another person's health or safety. If an employee refuses to work, he or she must immediately report to a supervisor. **Further information on the procedure to take place where an employee refuses to work and information on how the employee is to be reassigned to other work can be found in the *Occupational Health and Safety Act*, Section 43.**

The OHSA prohibits an employer from taking discriminatory action, such as layoff or suspension, against an employee because the employee acted in accordance with the OHSA or regulations ; *for further information see* **Section 45 of the *Occupational Health and Safety Act*.**

Accidents

Employers must report in writing to the Executive Director of Occupational Health and Safety, the following workplace accidents:

- **fire or other accidents that cause injury to an employee (report within 7 days);**
- **explosion (report within 24 hours); and**
- **accidents that cause death or are likely to cause death to any person (report within 24 hours)**

For further information on accidents refer to the *Occupational Health and Safety Act*, Section 63.

[redacted]

Powers of Officers

Occupational Health and Safety Officers appointed by the government under the OHSA have a number of powers to ensure compliance with the OHSA. For example, officers can inspect a workplace at any reasonable hour of the day or night; they can take photographs, recordings or samples at the workplace; they can require employers to produce records or other documents that are relevant to an investigation; and they can seize items from the workplace. **Further information on inspections and the powers of officers can be found in the *Occupational Health and Safety Act*, Section 47 & 48**

Offences and Penalties

If an employer or employee fails to comply with the OHSA or regulations, they may be found guilty of an offence and subject to a fine of up to $250 000.00 or two years in prison or both. **Information on offences and penalties can be found in the *Occupational Health and Safety Act*, Section 74.**

[redacted]

The following regulations have been made under the *Occupational Health and Safety Act*:

Accident Fund Payment Announcements:
Operating Costs 1991
Operating Costs 1994
Construction Safety Training Program
Appeal Panel Regulations
Construction Safety Regulations
Disclosure of Information Regulations
Fall Protection and Scaffolding Regulations
First Aid Regulations
General Blasting Regulations
Industrial Safety Regulations
Occupational Health Regulations
Occupational Safety General Regulations (to be effective April 1, 2000)
Temporary Workplace Traffic Control Regulations
Workplace Hazardous Materials Information System Regulations

Those regulations that are relevant to agriculture are referred to in other Sections of this manual. Copies of any of the regulations can be obtained through the world wide web at **<www.gov.ns.ca/just/regulations/regs/index.htm>** or by contacting the Registry of Regulations at **1-902-424-3300** or toll free at **1-800-952-2687**

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment (PPE) is worn to protect farm workers from injury. The *Occupational Health and Safety Act* has specific requirements regarding Personal Protective Equipment. The Act requires that employees wear protective equipment based on the hazards that they are exposed to. Employers must also ensure that employees are trained in the proper use and care of PPE and that the employee wears the equipment properly.

Spot the Hazard

Time should be taken to consider the PPE that may be appropriate to wear for every task on the farm. Even when other safety measures are in place to guard against a hazard; wearing the appropriate PPE is required under the *Occupational Health and Safety Act.*

Assess the Risk

Check whether identified hazards present risk of injury, and consider what PPE can be worn to minimize risk. Safety equipment and supply stores are a good source for information on personal protective equipment.

Make the Changes

Safety equipment and clothing must be worn when a farm owner/manager or an employee may be exposed to a hazard. It is the responsibility of the employer to: 1) either provide the necessary equipment; or, 2) have employees provide any necessary equipment themselves as a condition of employment. Employers have no options with respect to water safety and respiratory safety equipment; this equipment must be supplied by employers. Examples of PPE commonly required in the farm workplace include :

- **HARD HAT - if there is danger to the head.**
- **GOGGLES OR FACE SHIELD - if the eyes or face need protection.**
- **SAFETY FOOTWEAR - wear around large livestock, in the woods, or when heavy objects are being handled. Never wear leather footwear when working with farm chemicals. Instead, wear materials made from neoprene or rubber specifically designed for farm chemicals.**
- **LUNG PROTECTION - use dust mask in dusty situations such as confinement barns or grain storages; use a respirator with chemical control cartridge mask as required by label instructions when dealing with pesticides (label will indicate when respirator is required); self contained breathing apparatus where manure or silo gases are present.**

- **SKIN PROTECTION - use neoprene or rubber gloves when handling chemicals or infected animals**
- **WEAR WORK GLOVES if there is danger of cuts or scrapes, apply sun screen with an SPF of 30 or more when working outside. Barrier creams can also be used to provide protection when working with such things as treated lumber.**
- **HEARING PROTECTION - wear if noise level exceed 85 decibels. A good rule of thumb is that if you can't hear another person speaking when standing at arms length from them heavy protection should be worn, refer to Table 3.1 below for examples.**

	(decibels)
Ordinary conversation	**60**
Passenger car	70
Ventilation fans	**65-77**
Very busy traffic	80
Farm tractor (at operator's position)	**80-110**
12 Hp gas engine (driving auger)	100
Chainsaw	**115**
Forestry equipment	105-120
Swine barn at feeding	**120-133**

Table 3.1 Decibel levels of some common activities (Source Centre for Agricultural Medicine, 1997)

First Aid training and emergency preparedness are inexpensive forms of insurance for you, your family and your employees. It has been well documented that workers trained in First Aid are less likely to have accidents and suffer injuries, and the recovery time for those that do is generally much shorter.

The Occupational Health and Safety Act First Aid Regulations spell out your responsibilities relating to first aid. Employers are responsible to provide, supply and maintain the required first aid supplies at every work site. As well, depending on the number of employees, specific requirements are laid out for first aid training and remote location plans. In the case of larger operations, a first aid room is requiremed. It is a good idea to familiarize yourself with these regulations. If you did not receive a copy of the First Aid Regulations with your *Standards of Practice for Farms in Nova Scotia*, they can be obtained by contacting the **Nova Scotia Department of Labour at 1-800-952-2687**.

Spot the Hazard

We often tend to believe that accidents or disasters happen to someone else. The fact is, accidents can occur any time and any place. Knowledge of basic first aid measures and standard rescue procedures are vitally important to rural residents, simply because emergency services are not always readily available in rural areas of Nova Scotia. The life of a family member, an employee or your own life may hang in the balance for lack of 'on the spot' first aid knowledge and supplies.

Assess the Risk

Play 'what if' scenarios among your family and employees. Are there individuals on the farm with first aid training? What happens if only one person is qualified and that individual is the casualty? **Chances are, sooner or later your farm will have to confront an emergency situation. Are you prepared?**

Make the Changes

Nova Scotia's *Occupational Health and Safety Act* makes compliance with *First Aid Regulations* mandatory. Become familiar with these Regulations and make sure your workplaces(s) complies with them by:

1. **ensuring that the required number of employees hold valid emergency, standard, or advanced First Aid Certificates from recognized training agencies;**
2. **keeping a records of all injuries - even minor ones, and note any First Aid care that was given;.**
3. **ensuring that first aid is accessible to all employees during all working hours;**
4. **ensuring that transportation is available at all times to transport an injured worker;**
5. **understand the need for First Aid kits and make sure the kit is adequate for the number of employees, and;**
6. **ensuring that you comply with remote work site regulations where applicable.**

Remote Locations

A *Remote Location* refers to a workplace requiring more than 30 minutes of surface travel time in one direction to reach an emergency care facility that is open during the working hours of a work site. *(Interpretation 3 (m) - First Aid Regulations, Occupational Health and Safety Act.)* A written remote location plan is required for sites that meet the above definition. This written plan must:

- **Explain how the requirements for First Aid Regulations will be covered.**
- **List the method(s) of transport if someone is injured.**
- **Describe methods of communication to request emergency medical response.**
- **Note the number of First Aid Attendants required at each site and their qualifications.**
- **List supplies to be included in each first aid facility on site.**
- **Ensure that everyone in the workplace is aware of the plan and complies with it.**

First Aid Kits

The First Aid Regulations require various levels of first aid training and first aid supplies depending on the number of employees on the farm. Tables 4.1 and 4.2 provide details of the requirements of the regulations.

Figure 4.1 Levels of first aid training required

Level of Training	Requirements
Emergency First Aid Certificate	At least one person on each shift where there are more than one employee but fewer than 20 employees
Standard First Aid Certificate	At least one person on each shift where there are more than 20 employees but fewer than 100 employees
Advanced First Aid Certificate	Where there are more than 100 employees regularly employed on any shift.

First Aid Kit	Requirements --
FIRST AID KIT #1	only one person who is regularly employed
FIRST AID KIT #2	more than one but fewer than 20 are regularly employed
FIRST AID KIT #3	more than 20 but fewer than 50 are regularly employed
ADVANCED KIT #3	more than 49 are regularly employed

Figure 4.2 First aid kit requirements

Emergency Preparedness

Being prepared for an emergency situation can be relatively inexpensive but can be worth a fortune when an emergency occurs.

Spot the Hazard

In the case of natural disasters such as ice storms, hurricanes, floods or blizzards, proper preparation can minimize losses. Consider the possibilities of extended power outages, isolation of people or livestock by flood waters, extreme cold weather exposure, high winds, structure or wild land fires affecting your operation. Emergency response agencies are pushed to their limits during these times so having a farm emergency plan becomes essential.

Assess the Risk

As a family or workforce, consider all of the possible emergency scenarios that your operation might face then decide what the likelihood is of each occuring and the potential consequences. Think in terms of the different seasons and the activities that would normally be taking place on your farm at that time – for example, flood waters are rare in December, but not uncommon in April. Try to prioritize the scenarios and then address those with the greatest likelihood or worst outcomes first.

Make the Changes

Useful Items for Emergencies:

- **First aid supplies and handbook, blankets.**
- **Flashlight, a portable radio, spare batteries, candles, matches and mobile telephone.**
- **Food that requires little or no cooking and no refrigeration.**
- **Drinking water stored in sterile, sealed plastic**
- **Camp stove, hand tools, ropes, wire, shovels, sleeping bags, kerosene lamp.**
- **Standby generator, fuel, ample feed for livestock and pets.**
- **Amputation Kit (assorted sizes of clean plastic bags, twist ties, cold packs)**

Further information on emergency preparedness is available from Emergency Measures Organization Nova Scotia (EMO NS), from the Emergency Measures Coordinator of your municipality, and from emergency preparedness consultants and insurers.

Manufacturers of new machinery and equipment are legally required to ensure dangerous parts are safely guarded so that operators and others are protected from injury. Original guarding must be left in place and properly maintained.

There may be times when an operator may need to reach over, under, around or into a machine while it is running. If so, any moving parts or other hazards must be appropriately guarded from human contact. A guard may be any shield, cover, casing, or physical or electronic barrier, intended to prevent contact between a hazardous machine part and any part of a person or a person's clothing. The *Occupational Health & Safety Act* states that all moving parts of machinery must be guarded.

Spot the Hazard

Some of the hazards associated with machinery likely to cause injury include any:

- **rotating PTO drive lines and other shafts (e.g. joints, couplings, shaft ends and crank shafts);**
- **gearing (including friction roller mechanism), cables, sprockets, chains, clutches, cams or fan blades;**
- **the run-off point of any belt, chain or cable. All belts are hazardous, especially if joints are not kept smooth;**
- **keyways, keys, grease nipples, set-screws, bolts or any other projections on rotating parts;**
- **any pulley or flywheel that incorporates any openings, spokes, protrusions, etc.;**
- **any crushing or shearing points, e.g. augers and slide blocks, roller feeds, conveyor belts;**
- **ground wheels and track gear that incorporate protrusions, spokes, etc, that are adjacent to an operator's position (standing platform, seat, footrest) or passenger's seat;**
- **rotating knives, blades, tines or similar parts of power driven machines that operate in or near the ground or engage crops;**
- **machine components that cut, grind, pulp, crush, break or pulverize;**
- **hot parts of any machine where the surface temperature may cause injury during normal operation.**

Assess the Risk

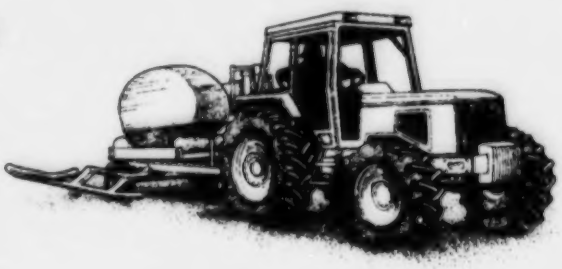
Once a hazard has been identified, assess the likelihood of the hazard resulting in injury to the operator or any other person, and the severity of any injury or harm that may be caused.

Make the Changes

ENSURE MACHINERY GUARDS:

- **are maintained to manufacturer's specification;**
- **are designed in a practical way to protect the user but allow ready access for operation and maintenance;**
- **are always in place on dangerous parts of machinery;**
- **are conveniently placed so that users, operators and service and maintenance people are less likely to remove them permanently;**
- **are strong and durable enough for the machine part they cover;**
- **protect users, operators and bystanders against burns caused by hot parts;**
- **are ventilated where applicable to avoid the machine over-heating, and;**
- **are not removed until the machine is stopped and isolated with a tagged lock-out switch, and all sources neutralized, e.g. pressure in the hydraulic, or low pressure gas (LPG) line.**

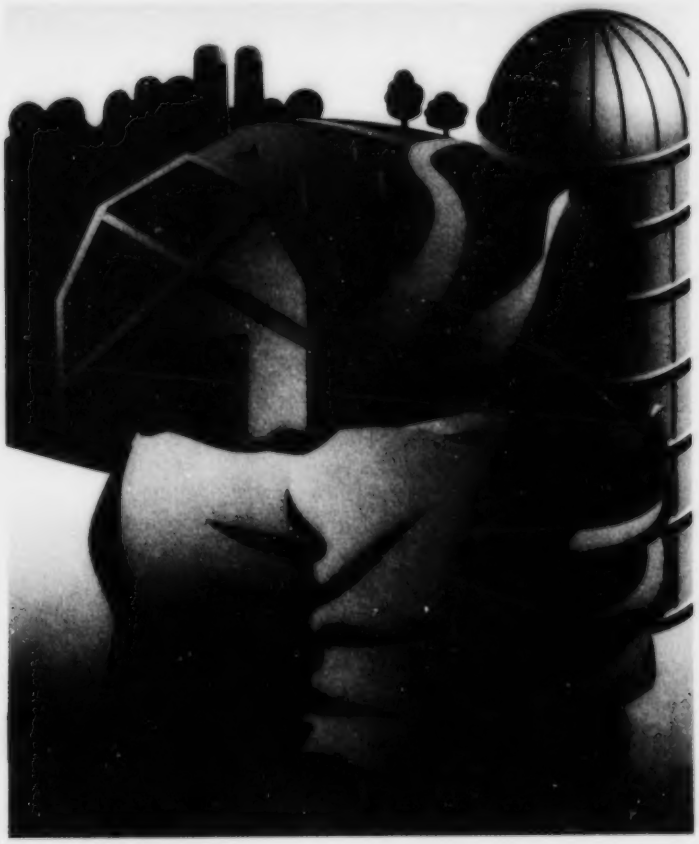
Children on or visiting the farm are often at risk of being injured by machinery. Minimize the risks, teach your children about safety on the farm and restrict them from areas where moving machinery is present and operating.



Safe Procedure

Develop safe procedures for working around all machinery, begin by putting the following procedures in place.

- **For maintenance jobs, have a checklist procedure ensuring guarding is safely replaced.**
- **Use approved lock-out and tag devices to prevent machinery being accidentally started during maintenance.**
- **Redesign work processes to minimize risk from moving parts.**
- **Get rid of machinery and eliminate work processes that can't be made safe.**
- **Have guards designed and fitted for older machinery.**



Perhaps more than any other occupation, agriculture involves a broad cross section of skills. Farmers and farm workers routinely perform a variety of tasks that in other industries would be done by a variety of skilled trades people.

Repairs and maintenance of farm machinery, and associated workshop tasks, are among the most frequent causes of farm injuries. Take the time to identify potential hazards and develop safe procedures for all workshop tasks, paying particular attention to the training and supervision of young and inexperienced workers.

Spot the Hazard

Check for potential hazards in the following areas, work spaces, electrical fittings and fixtures, power tools and equipment, ladders, welding equipment and procedures. Always ensure the safe storage of hazardous materials and equipment, and adopt safe procedures for lifting and carrying heavy and awkward weights. Ensure that children are restricted from workshops and other areas where machinery is being operated or maintained.

Assess the Risk

Check each potential hazard for the *likelihood* of it resulting in injury or harm. Make the highest risk items a top priority for safeguarding. Nova Scotia's Occupational Safety General Regulations (Parts 8 ,9 and 10) set out procedures for a number of the common tasks performed in farm workshops including tire repair and mounting, using abrasive wheels, using compressed air for cleaning, welding and cutting, starting and stopping machines and the use of space heaters.

Make the Changes

- **Ensure adequate working space for each job.**
- **Provide and use personal protective equipment where appropriate.**
- **Check to ensure there is sufficient lighting and ventilation.**
- **Keep walkways and exits clear.**
- **Update fire fighting and first aid equipment to meet current needs.**
- **Ensure fuel, compressed air, steam, electrical or other services are safely installed and maintained.**
- **Ensure first aid equipment meets requirements.**

Tools and Equipment

- **Understand the requirements of machinery guarding**
- **Ensure power tools and equipment are properly guarded.**
- **Ensure all guards and shields are kept in place during use.**
- **Read the manual before using new tools and equipment.**
- **Follow instructions on safe procedures.**
- **Use the correct tool for the job.**
- **Use clamps and vices where possible to hold job items.**
- **Store tools safely to prevent damage and unauthorized use.**
- **Keep bystanders and children safely away.**
- **Ensure electrical cords are in good repair and grounded.**

Regular maintenance of farm tractors can prevent hazardous incidents in the field and in the work shop; however, it is well documented that individuals can be killed or seriously injured while performing simple maintenance tasks and repairs to farm tractors. *The Occupational Safety General Regulations* (parts 7 and 8) have specific requirements for mechanical safety.

Spot the hazard

When planning tractor maintenance, check that the right equipment is available for safe jacking, removal of wheels and other tasks. Individuals who perform maintenance tasks should be experienced, and should be knowledgeable in safe procedures for heavy lifting, lock-out procedures, safe jacking and the use of any special tools required. Field repairs present specific challenges and should be performed with extra caution. One cardinal rule should always be followed: Children should be kept away from tractor maintenance operations.

Assess the risk

The greater the risk for an injury or a dangerous incident to occur, the more urgent the need for changes to be made to minimize or eliminate the risk.

Make the changes

The following general precautions can help reduce the risk of accidents during maintenance procedures.

GENERAL PRECAUTIONS

- **Routinely check brakes, clutches and drives, according to the manual.**
- **Ensure steering, exhaust system and brakes are in top condition.**
- **Stop the motor before refueling, servicing or greasing.**
- **Never remove or replace belts while pulleys are under power.**
- **Keep steps and working platforms free of grease and oil to avoid slips and falls.**
- **If the engine overheats, allow time for it to cool off before removing the radiator cap.**

WHEN JACKING A TRACTOR

- **Jack on a stable, flat surface, ideally a concrete floor.**
- **Avoid working alone. Ask somebody with training and experience to help.**
- **Refer to the manufacturer's manual on safe jacking, or seek professional advice.**
- **Where jacking points are not identifiable, jack from the lowest possible point**
- **Use jacks that comply with applicable standards.**
- **Use vehicle stands that comply with applicable standards, and are designed for the load to be suspended.**
- **Ensure wooden blocks for jacking are of hardwood with a surface area that will support the tractor's weight on soft soils.**

- **Chock all wheels that will remain on the ground.**
- **Chock all wheels on articulated vehicles to stop them from twisting sideways during jacking.**
- **Before jacking, apply brakes, place in gear - or automatic park - and switch ignition off.**
- **Stay clear of the tractor while operating the jack.**

WHEN REMOVING WHEELS

- **Loosen wheel nuts before the wheel is off the ground, to avoid any movement that could dislodge the tractor.**
- **Before removing a tractor tire from a rim, release all Chloride, ballast and air pressure.**
- **Use safety equipment when changing a tire.**
- **Never jack more than one wheel off the ground at a time in the field.**
- **If both rear wheels have to be removed, work on a flat, level concrete floor, in the workshop.**

LOCKING-OUT POWER

The *Occupational Safety General Regulations* (Part 6) require that tractors be at a 'zero energy state' when being worked-on. Zero energy state is defined as: *a condition in which a machine, equipment, tool or electrical installation is rendered incapable of spontaneous or unexpected action or otherwise releasing kinetic or potential energy.* In the case of a tractor, key removal or disconnection of the energy source for starting the tractor will generally render the machine incapable of spontaneous action.

Written lock-out procedures should be prepared and posted in the workplace. These procedures should include:

- **a method of notifying persons in the work area of safe conditions for work after the lockout has been completed**
- **a method of determining that all persons near the locked-out machine are clear of the hazardous area and have been instructed to remain clear before the machine or any part of it is energized**
- **a method of energizing the machine**

Tractors are the main cause of accidental farm deaths. Over the years, many farmers, their employees and others living on or visiting farms, have been killed or seriously injured in accidents involving tractors.

Spot the hazard

Constant vigilance is required when operating or working with tractors and other mechanized equipment. Hazardous areas include: moving mechanical parts; raised hydraulic cylinders, climatic conditions, uneven terrain, and by-standers. A key procedure for preventing tractor accidents is operator training and the establishment of safe procedures for tasks such as hitching external equipment. Always keep children away from areas where tractors are operating and never allow children to ride on tractors and other powered equipment.

Assess the risk

Once the potential hazards have been identified, assess the likelihood of an injury or hazardous incident occurring.

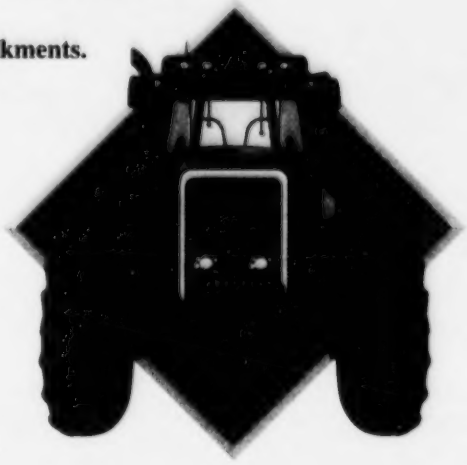
Make the changes

Following are a number of suggestions for improving tractor operator safety:

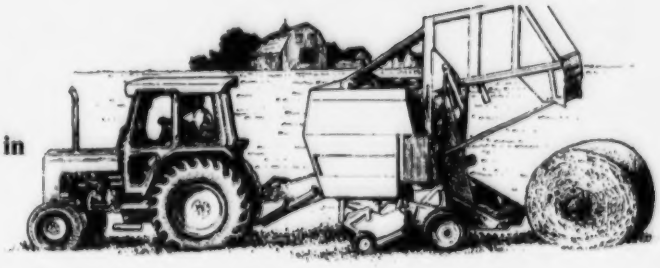
- **Read and follow safety procedures in the manufacturer's manual.**
- **Ensure an approved cab or roll-over protective structure (ROPS)is installed.**
- **Install and use a seatbelt on tractors with ROPS or other restraints.**
- **If there is a risk from falling objects, install a fall-on protective structure.**
- **Keep all guards in place, including the power take-off (PTO).**
- **To reduce risk of back strain, fit a seat with side restraints and a backrest.**
- **Wear hearing protection, and remember, not all tractor cabs are sound proof.**
- **Keep children away from tractors and machinery.**
- **Remove starter keys when tractors are not in use.**
- **Have an up-to-date maintenance schedule.**
- **Follow safe maintenance and jacking procedures.**
- **Ensure the operator is properly trained for each type of tractor work.**
- **Always mount and dismount on a tractor's left side-to avoid controls, where possible.**
- **Adjust the seat so all controls are safely and comfortably within reach.**
- **Operate the self-starter from the operator position only.**
- **Never carry passengers.**

When operating a tractor:

- **Drive at speeds slow enough to retain control over unexpected events.**
- **Always wear seat belts - Roll over Protection devices are useless without seat belts.**
- **Reduce speed before turning or applying brakes.**
- **Watch out for ditches, logs, rocks, depressions and embankments.**
- **On steep slopes, without a trailed implement, reverse up the slope for greater safety.**
- **Engage the clutch gently at all times, especially when going uphill or towing.**
- **Descend slopes cautiously in low gear, using the motor as a brake.**
- **Never mount or dismount from a moving tractor.**
- **Ensure the park brake is on and operating effectively before dismounting.**
- **Take short breaks regularly when working long hours.**



When towing implements



- **Ensure all guards on towed implements are in place before operating.**
- **Fit attachments according to the manufacturer's instructions.**
- **Always attach implements to the draw bar or the mounting points provided by the manufacturer.**
- **Regularly check safety pins on towed lift-wing or folding implements, to ensure they are not worn.**
- **Never hitch above the centre line of the rear axle, around the axle housing or to the top link pin.**
- **Never adjust or work on implements while they are in motion.**
- **Never attach implements unless the PTO shaft is guarded.**
- **When parking, always lower the three point hitch and towed implement.**

To avoid strain and injury

- **Adjust the tractor seat for back support and comfort.**
- **When buying a tractor, ensure seating is safe and comfortable.**
- **Plan for your next tractor to include suitably low steps, hand grips, adequate doorway and cab space, and a safe mounting platform.**
- **Dismount by climbing down-not jumping down.**

The Occupational Safety General Regulations (Part 7) require that all tractors manufactured on or after January 1, 1974 be equipped with a rollover protective structure (ROPS) that meets minimum CSA standards. Tractors manufactured before January 1, 1974 should, where reasonably practicable, be equipped with a ROPS that meets requirements set out in Regulations for older tractors.

Farm chemicals can cause injury or harm if used improperly. Chemicals include: pesticides; sanitation and various other products used in barns, workshops or in the fields. Certification by Nova Scotia Department of the Environment is required by anyone who purchases and applies agricultural pesticides. Transportation, storage and disposal of chemical containers all pose hazards which can affect human health and the environment if correct procedures are not followed. Every worker who has any contact with hazardous materials (chemicals, cleaners, pesticides, fuels) must be trained in the WHMIS system and have Material Safety Data Sheets (MSDS) readily available.

Spot the Hazard

Read and follow labels and MSDS data supplied by the manufacturer for information on hazards, the requirements for personal protective equipment, and safe handling, transport, storage and disposal for each chemical. Ensure chemicals are stored in a locked, well lit and well ventilated area, separate from other chemicals that may cause them to react dangerously; and, be aware that solvents in some chemical concentrates can escape as harmful vapors unless containers are well sealed.

Assess the Risk

For each chemical hazard identified, assess the likelihood of an injury, harmful reaction or a hazardous incident occurring. Assess also whether any injury or harm is serious and imminent, and whether steps to minimize or eliminate the risk should be taken immediately. Consider proposed control measures for their likely effectiveness. The MSDS will help you properly transport, store, use, dispose of, and clean-up any leak or spill of a hazardous material.

Make the Changes

Following are some ways of improving safety in the storage and disposal of farm chemicals.

- **Locate storage area as far away as possible from humans and livestock to prevent accidental poisoning.**
- **Keep pesticide storage locked.**
- **Ensure that all pesticide applicators are certified in accordance with the Nova Scotia Department of Environment Regulations.**
- **Read the label for directions on pests controlled rates, use, storage and disposal.**
- **Store respirators, and other protective clothing and equipment, safely away from chemicals.**
- **Ensure absorbent materials are located close by to clean up any spills. These may include kitty litter, absorbent pillows, lime and/or sand.**
- **Store the chemicals in the original containers with labels intact and replace lost or damaged labels with other identification.**
- **Never store chemicals in food or drink containers.**
- **Pesticide storage area should be used for no other purpose.**
- **Store herbicides separately from other pesticides so there is no cross contamination.**
- **Post warning signs and emergency numbers on pesticide storage.**

Disposal

- **Nova Scotia has an empty pesticide container recycling program; check with Nova Scotia Department of Environment for a list of vendors who will take empty containers back.**
- **Labels and caps should be removed from all containers.**
- **Triple rinse empty containers to remove all traces of the chemical.**
- **Where possible, return containers to the manufacturer or supplier, or call Department of Environment for information on disposal.**
- **MSDS may provide disposed information**

Transport

- **Do not leave chemicals unattended during transport.**
- **Secure hazardous substances on the vehicle so they can't move or fall off.**
- **Keep a record of the chemicals you are carrying.**
- **Carry suitable personal protective equipment, including respiratory equipment if necessary, in case of emergency.**

The best way to prevent pesticide mishaps is to ensure that you and all your employees are certified under the Nova Scotia Department of Environment's pesticide applicator program.

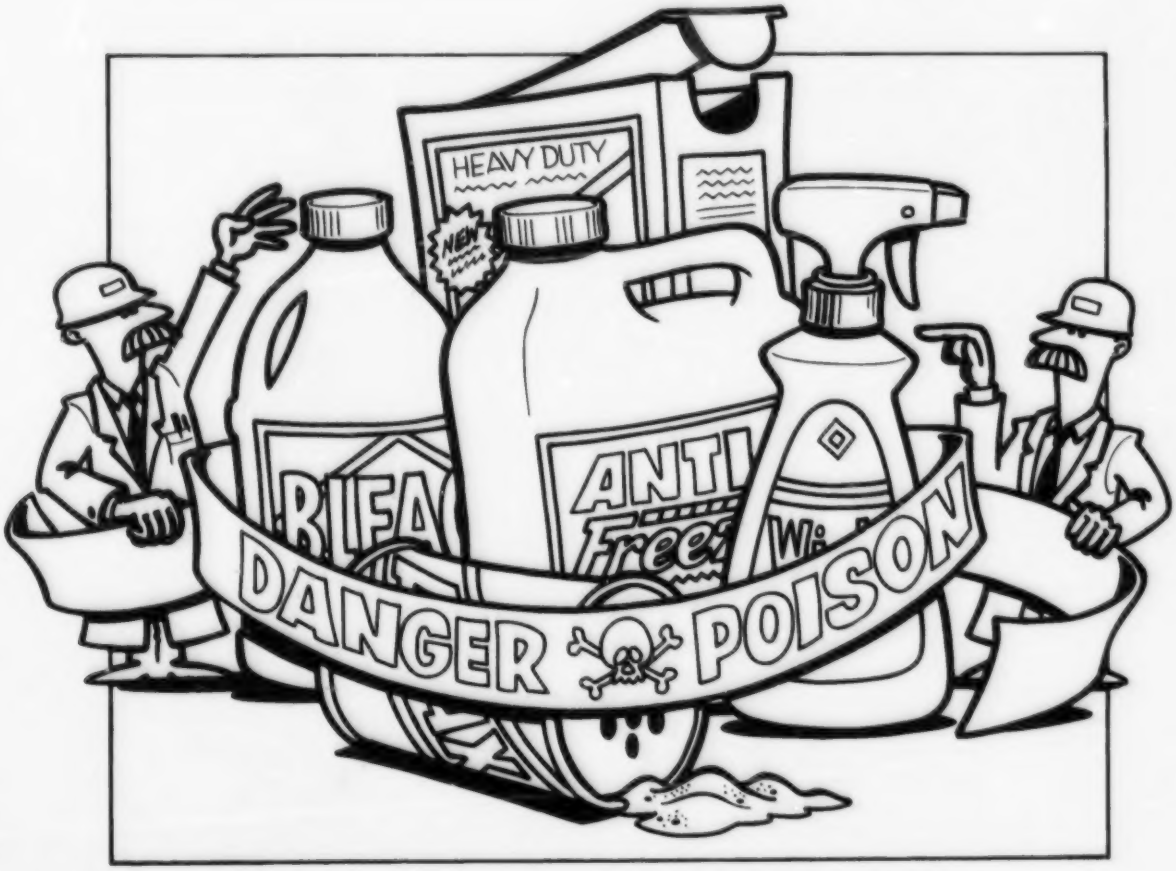
Storage Regulations

Pesticide Storage Regulations (Part IV), administered by the Nova Scotia Department of Environment contain a number of conditions that must be met by anyone storing commercial or restricted class pesticides in amounts exceeding 25 L or 25 kg in concentrate form. These regulations apply to all farm businesses.

The Regulations include the following important points.

- **Storage facilities must satisfy Department of Environment Regulations.**
- **The local fire chief, or his designate, must be kept informed of types and quantities of pesticides being stored and the location of pesticide storage.**
- **Placards with wording such as 'WARNING - CHEMICAL STORAGE - AUTHORIZED PERSONNEL ONLY' are to be placed on each door leading to the storage room.**
- **Emergency telephone numbers including fire department, police, hospital, poison control centre, Environment Department and Emergency Measurers Organization must be posted at the storage site.**
- **Access to the storage must be controlled. Keep the storage locked other than when authorized personnel are present.**

It is vitally important to remember that virtually all rural fire departments are staffed by volunteers. It is our ethical and moral responsibility to do our utmost to ensure that we do what we can to minimize the risks that they confront in responding to an emergency on the farm.



No one can predict animal behavior, and they do not come with a manual for proper care and handling. Injuries related to livestock handling are common occurrences and can be related to a number of factors including those listed below.

- **inadequate yard design**
- **lack of training of handlers**
- **unsafe work practices**
- **the weight, sex, stress factor and temperament of animals**

Spot the Hazard

- **Consider situations that cause stress and injury to handlers and animal.**
- **Take into account sex, weight and temperament of animal.**
- **Consider effects of weather and herding on animal behavior.**
- **Check potential hazards and safety advantages of animal facilities, including mechanical aids work layout and floor surfaces.**
- **Consider what training is required before a person can confidently and competently handle animals.**

Assess the Risk

Assess whether any of the hazards identified are likely to cause injury or harm, and base safety decisions on the likelihood and possible severity of the injury or harm.

Make the Changes

The following suggestions may help minimize or eliminate the risk of injury when handling all classifications of livestock.

- **Always plan ahead**
- **Animals may be more unpredictable during cold, windy weather**
- **The animal hazards vary according to the age, sex, breed, weight, temperament and training of animals**
- **Approach animals quietly, and make sure they are aware of your presence**
- **Be aware that most animals are more aggressive during mating season**
- **Be aware that animals can be more dangerous when their young are at side**
- **Be aware that isolated animals become stressed more easily**
- **Be aware of an animal's flight zone and use it to your advantage**

- **Avoid sudden movement and loud noises when working with livestock.**
- **Prepare and communicate safe work practices.**
- **Wear appropriate personal protective clothing.**
- **Use neoprene or rubber gloves when applying pesticides.**
- **Know the limitations of yourself and others - work within those limitations.**
- **Yards and sheds should be strong enough and of a size to match the class of livestock handled.**
- **Good yard design will assists the flow of animals.**
- **Keep facilities in good repair and free from protruding rails, bolts, wire etc.**
- **When animals need restraining, use approved restraining devices.**
- **Try to maintain yards in non-slippery condition.**

Transmittable Diseases in Livestock

Remember that animals can carry diseases that are transferable to humans. If the disease is present, treat affected animals appropriately and vaccinate to prevent further occurrence. Diseases are transmitted by urine, blood and saliva, and through open wounds. Personal hygiene is important factor when dealing with diseased livestock; always wash well with water, soap and antiseptic after handling livestock.

Silos, grain bins and liquid manure storage pits, pose numerous and serious hazards to those who must work in and around these types of structures. Hazards associated with these types of structures include: insufficient oxygen; toxic gas; explosive atmospheres; unguarded machinery and electrical devices; entrapment or burial in grain bins or silage; and, falls from heights. All of these hazards also pose significant risks for unsupervised children.

A confined space is defined by *Occupational Safety General Regulations* as: *Any structure that is enclosed or partially enclosed, is not designed or intended for regular human occupancy, has restricted access or exit and that may become hazardous to a person entering it because of its design, construction, location atmosphere or the materials or substances stored in the space.* Silos, grain bins and liquid manure storage pits all fit this definition.

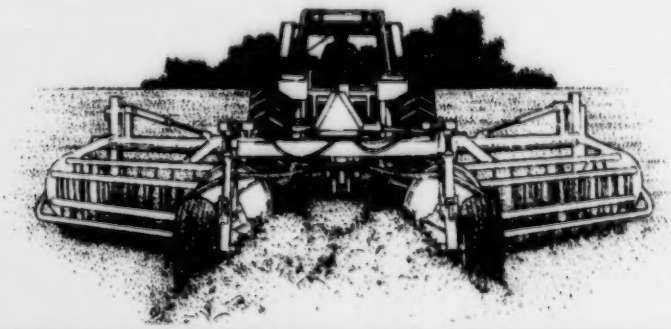
The Occupational Safety General Regulations impose a number of requirements on those who work in and around confined spaces including, but not limited to, the following requirements:

- **having a written confined space entry procedure;**
- **training for all people who may need to enter a confined space;**
- **notification in case of an emergency;**
- **appropriate Personal Protective Equipment; and,**
- **a written emergency procedure to be followed in the event of an accident or emergency.**

Spot the Hazard

Keeping in mind potential hazard areas, conduct an assessment of your silo, grain storage system and manure storage. Consider any specialized machinery used in and around these facilities, especially material handling equipment, which can grab limbs and clothing unless adequately guarded, equipment powered by electricity and PTO driven equipment. Look closely at any part of the system that could injure or harm people. Check silo ladders, both external and internal, fall protection systems *(see Section on Fall Protection in this manual)*, edge protection, and safe procedures for fumigation and dislodging bridged grain. Consider the resources required for rescuing someone who may become trapped in a confined space.

Nitrogen dioxide (NO_2), the chemical name for deadly silo gas is a swift and silent killer. It is formed as a result of chemical reactions that begin almost immediately after chopped plant material is placed in the silo. Exposure to concentrations of this natural by-product of ensiling can result in dramatic, sudden death, or extreme respiratory damage.

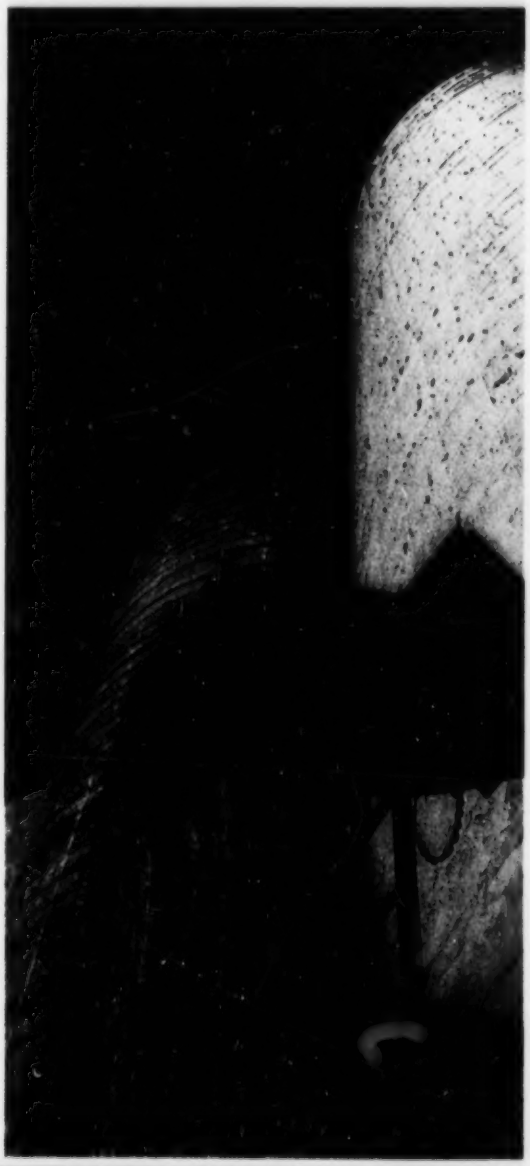


Risk of exposure to silo gas is greatest during the first three weeks after the silo has been filled. Silo gas may be visible as a reddish to yellowish-brown haze around the base of a recently filled silo or on top of the silage material. Silo gas may have a bleach like odour.

Liquid manure pits are the most hazardous confined space found on farms. The hazards include the creation and release of toxic gasses, moist conditions which increase the potential for electric shock and can cause slippery surfaces. Powered and mobile machinery for pumping and agitating manure pose an entanglement hazard, and the depth of the pit is a drowning hazard for both humans and livestock.

Assess the Risk

Any identified hazards will present a risk for serious injury to those who work in and around confined spaces; consider the ways those risks can be minimized. Never underestimate the danger associated with silo gas and working confined spaces. Many of the hazards may be undetectable without special test equipment and special purpose protective equipment such as Self Contained Breathing Apparatus (SCBA) may be required to enter these spaces.



Make the Changes

Consider the following strategies when developing work procedures for confined spaces:

- **Understand the need for special precautions when working in confined spaces.**
- **Understand the dangers associated with silo gas, loose grain, and manure gasses.**
- **Remember, dust in grain bins can be become explosive, particularly if humidity is low.**
- **Don't smoke near silos, and avoid causing sparks from metal friction or electrical switches.**
- **Carbon dioxide in a silo can displace oxygen and cause suffocation - always ventilate well before entry.**
- **Do the job from outside if possible.**
- **Wear appropriate respiratory equipment when in doubt about atmospheric conditions.**
- **Ensure that guards are placed around all moving parts.**
- **Ensure external ladders start at a height above the reach of children.**
- **Provide fall protection or fall arrest equipment at tower silos. If a fall arrest system is used it must incorporate a properly adjusted full body harness and lanyards.**

Special Precautions for Silo Gas

- **Post a "Silo Gas" warning sign in a conspicuous location near the silo. Declare silo areas as "off limits" to children and visitors during the 3-week period after filling.**
- **Contact your local fire department or other emergency service to determine if pressure-demand Self Contained Breathing Apparatus is available to deal with an emergency. Provide information to the fire department about your silo and all other confined spaces in an Emergency Response Tube.**
- **Provide feed room ventilation to remove silo gas that may 'spill' down the chute or be blown out by the unloader. If such ventilation is not available, keep the feed room door tightly sealed to prevent contamination of the stable area.**
- **Adjust the distributor to level silage during filling operations. Don't level the silo material by hand!**
- **If it is necessary to go into a silo at the completion of filling, do so as soon as the last load is off. Don't wait until the next day! Wear head and eye protection and leave the blower running while you are inside the silo.**
- **Silo entry should never be attempted without wearing a full body harness with a lifeline that is in the hands of outside help. Consider that a single person would not likely be able to pull you up the silo wall and out to safety through the roof hatch.**
- **Always ventilate the silo head space thoroughly prior to entry.**
- **Note: If the depth of settled silage is more than 5m from the top of the silo, attach a piece of flexible tube to the blower pipe to direct the air flow down to the surface. Leave the chute doors closed and the roof vent open to ensure that deadly gases will be expelled into the atmosphere, and not simply forced down into the feed room.**

Agriculture and Agri-Food Canada recommends a minimum forage blower ventilation period of 30 minutes for silos up to 7.2 metres in diameter. Larger structures and deeper head spaces may require more ventilation time for safe entry. Always wear head and eye protection and keep the blower running while anyone is in the silo.

- **A top unloader can ventilate a silo quite effectively. However, if an equipment failure occurs in a recently-filled silo, it is safest to assume that some toxic gas may have accumulated. Re-ventilate with the forage blower and drop pipe before attempting entry.**
- **Anyone who experiences the slightest throat irritation while in the vicinity of a recently-filled silo should leave the area and get into the fresh air as quickly as possible.**
- **If someone has collapsed while working inside a silo, start ventilating with the forage blower immediately; a fresh air supply is crucial. DO NOT ATTEMPT RESCUE UNLESS YOU HAVE SELF CONTAINED BREATHING APPARATUS OR UNTIL THE SPACE HAS BEEN VENTILATED FOR AT LEAST 30 MINUTES.**

Even very limited exposure to NO_2 can result in severe lung disorders. Prompt medical attention for anyone exposed is vital. Advise Medical First Responders of the circumstances and the hazards and prepare to assist them to make a rescue.

Special Precautions for Grain Bins

- **Don't enter a grain bin unless you have to.**
- **If you must enter a grain bin, have someone standing by outside in case of difficulties.**
- **Never enter a grain bin without locking out the power source to the auger and ensuring no one can start filling or emptying the bin while you are inside.**
- **Stay on the ladder above the level of compacted or bridged grain while dislodging it. Wear a full body harness and attach a lanyard to the ladder above your head.**

Emergency procedures for Grain Tanks

- **If trapped by grain don't panic - the grain will pack tighter. Shield your face and chest with arms and clothing to create space for breathing.**
- **Plan for escape before entering. Always have a person watch from the outside. The watcher should have clear instructions what to do in an emergency. The first instruction must be: "Don't follow me in" followed by "Call 911 and get help here if I get trapped."**
- **Only one person on standby cannot pull you out without entering; they must call for help. Only then may someone else enter, wearing a self contained breathing apparatus and a life-line. One or more people outside can help to pull you out.**
- **If someone else is trapped in a grain bin, empty the bin by opening any side outlet, then cut flaps in the cone or walls all around the base using power tools.**

Check Machinery

- **Place guards around auger drive train (belts, pulleys, drive shafts) and a grate or screen over the rotating screw.**
- **Locate mobile augers on firm, preferably flat ground, and operate at a shallow angle (less than 45%) to prevent overbalancing.**
- **Lower mobile augers when transporting.**
- **Never start augers hidden from your view before checking that the area is clear of other people.**

Avoid Falls

- **Use fall protection equipment when working over 10 feet above ground/floor level.**
- **Provide fall protection in the form of a railing for loft areas.**
- **Install an external ladder cage or a ladder rail or cable system to attach a full body harness to for silos and bins over 10 feet in height.**
- **Provide a permanently hinged wire mesh guard on all external openings above the maximum level of grain.**

Hay and grain harvesting are not the most hazardous farm jobs; however, these jobs usually involve, sometimes inexperienced, part time labour, long hours and extreme weather conditions. Combined, these factors mean an increased risk of accidents during harvesting operations.

Spot the Hazard

General areas that may pose a risk of injury during harvesting operations include:

- **Working while fatigued and/or with too much haste.**
- **Children playing near harvesting equipment and stacked or baled hay/straw.**
- **Operators who are not properly trained in the use of harvesting equipment.**
- **Attempting to clear or work on a plugged or malfunctioning piece of machinery .**
- **Common hazards are mower blades that are plugging, twine mechanisms that are not tying and baler's that are not picking up windrows.**
- **Transporting round bales too high above tractor with equipment that offers no protection for the operator.**
- **Failing to block a raised platform, bucket, etc. before working under it.**
- **Operating equipment too fast, on steep slopes or near ditches.**

Equipment Hazards

- **Lack of machinery guarding on moving parts of equipment**
- **The use of two-poster tractor ROP's for moving baled hay on front end loaders.**
- **The use of makeshift or poorly fitted attachments on tractors, hay wagons, hitches, etc.**
- **Slow moving equipment on roadways without proper reflector signage and lights.**
- **Improper lock out or blocking procedures when working on equipment.**
- **Build-up of loose, combustible material in the equipment.**

Transporting Hazards

- **Slow moving equipment on roadways without proper reflective signage and lights.**
- **Sturdiness of trailers and hay wagons carrying heavy loads.**
- **Loads too tall for power lines.**
- **Rough terrain that may cause loads to become unstable.**
- **People riding on equipment.**

Assess the Risk

List all of the hazards spotted on your farm and number them in order of priority so that those most likely to cause injury can be dealt with immediately.

Make The Changes

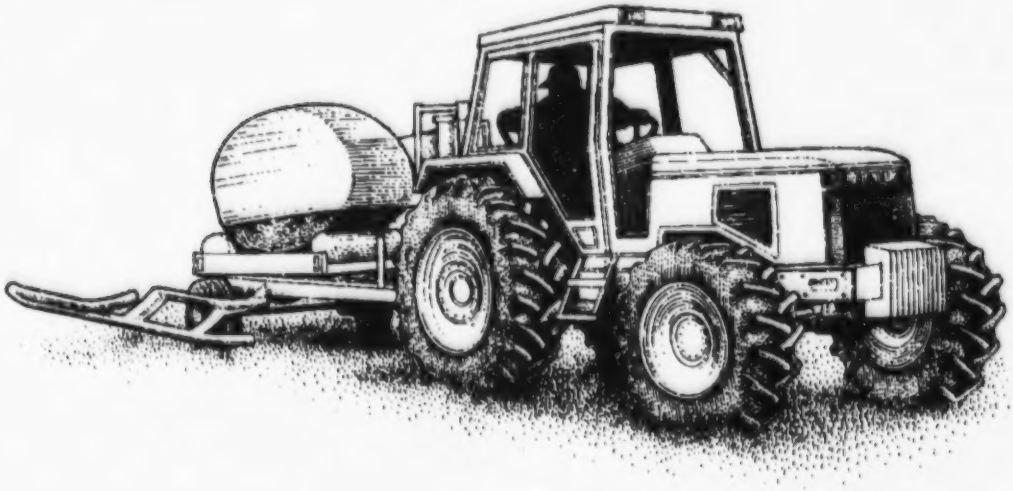
Handling Materials

- **Take a break now and then during harvest. Fatigue leads to accidents**
- **Dress properly:**
  - ❖ **gloves**
  - ❖ **well fitting clothes**
  - ❖ **sunblock**
  - ❖ **sunhats**
- **Provide plenty of water for people, working in heat to prevent dehydration.**
- **Keep children away from hay baling and combining operations.**
- **Make sure that operators are properly trained and physically capable of harvesting tasks.**
- **Use Lock-out and blocking procedures when working on malfunctioning harvest equipment.**
- **Consider fall arrest equipment for people working at heights.**
- **Avoid steep terrain, unstable conditions and overloading equipment.**

Transporting Equipment and Materials on Roads and Highways

If it is necessary to use public roads and highways during the harvesting operation, consider the following points:

- **Install slow moving vehicle signs, and lights on all equipment that will be on public roads.**
- **Never permit anyone to ride on loaded hay wagons at any time.**
- **Be aware of overhead obstructions like trees and power lines.**
- **Ensure loads are adequately secured.**
- **Do not overload vehicles beyond their capacity.**
- **Drive carefully!**



ELECTRICITY

All farm businesses have become dependent on electricity. It is a essential commodity that has become largely taken-for-granted. But, be cautioned, electricity is one of the commodities that we all use every day in our homes and businesses that has the potential to cause great harm. The *Occupational Safety General Regulations* have specific requirements for electrical safety (Part 11). Also, Part 6 of the *Occupational Safety General Regulations* deals with lock-out procedures; these procedures are an important part of establishing a risk management strategy for the safe use of electricity.

Spot the Hazard

Check to ensure that electrical fittings, fixtures, wiring, insulation, switches, power cords, plugs, ground wires, guarding, and welding equipment are in good condition and regularly maintained. Shorting or sparks in electrical equipment are signs that the equipment requires servicing or replacement. When possible, avoid using electrical equipment in wet conditions and establish procedures for locking-out power to electrical equipment when it is idle or being serviced .

Assess the Risk

Assess each identified hazard for likelihood and severity of possible injury or harm. If there is any risk of electric shock or electrocution, you should ensure the hazard (piece of equipment, procedure) is put out of use and either isolated, or kept in a safe place until repaired or discarded.

Make the Changes

The following suggestions will help to minimize or eliminate the risk of electric shock.

- **LOCK OUT main switches and place locks and tags on them before working on power circuits so that no one else may use them while you are working. Before closing a Switch, make certain other workers are clear of circuits.**
- **Consider every circuit to be live.**
- **Use safety equipment when necessary, such as rubber gloves, rubber mats, fuse tongs, insulated tools, etc.**
- **Use proper instruments for testing circuits.**
- **Strictly observe the applicable rules under the Canadian Electrical Code.**
- **Allow only qualified electricians to work on electrical apparatus.**
- **Have periodic electrical inspections made by qualified people.**
- **Use warning signs and block off dangerous areas.**
- **NEVER bridge a fuse.**
- **Always employ an electrician for power alterations or repairs.**
- **Ensure wiring, equipment, leads and plugs are kept in good repair.**
- **Don't overload your wiring installation.**
- **Don't remove guards or covers from electrical switch gear.**
- **In areas exposed to wind and rain, always use weather-proof outlets and fittings.**
- **Avoid using outdoor electrical equipment in wet weather.**

- **All lights exposed to breakage by farm tools should be fitted with wire guards.**
- **Old rubber-insulated wiring is now unsafe, and should be replaced.**

Major sources of farm electrical injures and fatalities include:

- **Contacting overhead power lines with equipment such as high-dumps and portable augers.**
- **Poor location of wiring and electrical devices such as motors.**
- **Running into power poles and electrical equipment with machinery.**
- **Short circuit by power lines crossing, or coming into contact with trees.**
- **Animals coming into contact with live circuits or stray voltage due to poor grounding.**
- **Contacts with buried cables during trenching, digging of fence post holes, and general construction and excavation.**

Improve farm electrical safety with the use of the following strategies:

- **Using devices designed for outdoor use.**
- **Locating switches and outlets away from flammable materials.**
- **Ensuring that extension cords and devices are grounded.**
- **Using a GFI (ground fault interrupter) outlet for portable electrical equipment outside.**
- **Looking for shorting or sparking of fittings or equipment.**
- **Avoiding the use of electrical equipment in wet conditions.**
- **Wearing safe footwear and clothing.**
- **Contacting a qualified electrician for work on wires, plugs, switches, fuses and electrical plants.**

Ground wires

- **Ground wires are an essential part of the safe use of electricity. Their purpose is to divert any current leakage to the ground and cause a fuse to blow or a circuit breaker to trip out should a fault develop in the installation. The ground wire is usually a bare or green insulated copper wire, it should never be removed or disconnected.**

Outdoor power lines

- **Make sure tall items like balers and headers are kept well clear of overhead wires.**
- **Never permit riders on any Farm equipment (ie. hay wagons).**
- **Plan farm roads to avoid passing under power lines, and have new power lines installed so they don't cross over roads.**
- **Always check the location of power lines before you start work.**
- **Always check plans and records of underground powerlines before any digging or earthworks.**
- **Never stack irrigation pipes or park machinery under power lines.**
- **Never up-end a pipe before looking up. Carry pipes horizontally.**
- **Remember, power line heights are deceptive.**
- **Know the maximum operating height of your machine.**
- **Have an observer check your position when working close to overhead power lines.**
- **If in doubt, always contact the supply authority for advice and assistance.**

- **If you see a power line that has been damaged or has fallen down, keep clear and notify the power company.**

Fuses and Circuit Breakers

- **When fuse and circuit breakers indicate a problem with electrical systems, turn off the switch and check the electrical equipment being used before you replace the fuse or reset the circuit breaker.**
- **When replacing a fuse or a circuit breaker, make sure its rating is correct for the circuit.**
- **If fuses and circuit breakers continue to indicate a problem, consult a person who is qualified to make an assessment of electrical systems.**

Power tools

- **When buying a portable power tool, double insulated is safer.**
- **Never use a light socket to operate a power tool.**
- **Do not use tools if the casing is broken or damaged. Damaged cords and plugs should be replaced.**
- **Regularly check power tools are free from external damage or makeshift repairs. This includes leads and plugs.**
- **Do not make adjustments to a tool without first switching it off and removing the plug from the power point.**
- **All bench-mounted equipment should be properly grounded.**
- **Do not use makeshift extension lights. Use a type with a guard around the globe and an insulated handle.**

Welding equipment

- **Switch off power before connecting welding leads to terminals.**
- **Check leads are correctly connected to terminals marked 'electrode' and 'work'.**
- **Ensure supply terminals and live parts are suitably enclosed and protected.**
- **Ensure welding terminals are shrouded to prevent inadvertent contact or short circuits.**
- **Check the frame of welding equipment is effectively grounded.**
- **Don't use leads if they have bare sections. Replace them.**
- **Never use bare hands on metal parts of electrode holders or electrodes while the welder is switched on. Never rest the electrode on your body.**
- **Be sure to keep waste material away from the welder.**

Agriculture workers are involved in a broad range of tasks and duties which involve significant heights where fall protection is required. The *Occupational Health & Safety Act* (Section 9) places emphasis on fall protection and scaffolding with a set of Regulations that are separate and apart from the *General Safety Regulations*.

Spot the Hazard

Fall Protection is required when a person is working in an area above water or that's 3 meters (10 feet) or more above a safe working surface. This would include areas such as building roofs, silos, grain bins, hay mows, manure pits, and irrigation ponds. Fall protection is also required above surfaces or things that could cause injury to the person on contact. Fall protection is required when working over open tanks, pits or vats.

Assess the Risk

Check each hazard area for the likelihood of it resulting in injury or harm. Become familiar with the Fall Protection and Scaffolding Regulations under the Occupational Health and Safety Act as they may apply to your specific farm situations.

Make the Changes

If the hazard of a fall exists, protect yourself and your employees. Following are some examples where you can make changes to improve your farm safety program with respect to fall protection:

- **When climbing a fixed vertical ladder (tower silo, grain tank) have people use a fall arrest system as laid out in the *Fall Protection and Scaffolding Regulations*, Section 8. A fall arrest system includes an anchor point or rail, a lanyard and a full body harness.**
- **Install guardrails around uncovered openings in floors, landings, platforms and other areas where work is carried out at heights of 10 feet or more or where other hazards exist as discussed in the regulations.**
- **Before climbing, people working around orchard trees must check the tree for stability, the safest path of ascent and safest position for the ladder.**
- **3 point contact should always be maintained when climbing ladders. ie.- two feet and one hand always on rungs; two feet plus a safety harness attached to a secured point to prevent free fall.**
- **Ensure that all silo and bin ladders are safely and firmly attached, and are strong enough to carry the expected loads.**
- **Ensure that the bottom end of silo ladders are high enough off the ground to be inaccessible to children.**

Fires and explosions are fairly common accidents on farms. They are caused by a variety of sources, including fuels, welding, faulty electrical wiring and overheated machinery parts. Due to the length of time remote farm locations, farm fires often become very involved, resulting in devastating damage to buildings, property and equipment. The human costs of fire can be death or serious injury requiring treatment and rehabilitation.

The best risk management strategy to deal with fire is prevention. Teamwork, planning and communication are vital to the safety of people fighting fires. The 911 system now covers all parts of rural Nova Scotia. Ensure that everyone on the farm knows how to call for emergency help.

Spot Hazard

Common fire hazards that exist on all farm workplaces include:

- **faulty electrical wiring;**
- **malfunctioning electrical equipment;**
- **improper use or storage of flammable materials;**
- **spontaneous combustion in stored forage;**
- **faulty lightning devices;**
- **farm machinery (sparks from exhaust and welding, defects in ignition system, overheated engines);**
- **smoking around flammable materials (hay, bedding, fuel); and,**
- **faulty heating equipment.**

Assess the Risk

Carefully look at your farm operation using the list of the hazards above. Are there areas which could be potential fire risks on your farm?

Make the Changes

Following is a list of guidelines that may help you in developing an effective fire prevention program for your farm.

Electrical Systems

- **Have your electrical system checked on an annual basis and upgrade areas that show wear.**
- **Do not overload electrical circuits.**
- **Do not overload a circuit by using the wrong fuse size.**
- **Follow lockout procedures when working on electrical equipment.**
- **Use extension cords that are in good repair.**
- **Take care not to damage electrical wiring when drilling holes or driving nails.**
- **Keep areas around electrical equipment free of flammable and combustible material.**
- **Protect light bulbs and heat lamps with wire.**

- **If an electrical product fails to work, makes unusual noises, has a burnt smell or sparks, unplug it immediately.**
- **Be sure that your electrical service entrance ground is securely attached to the grounding wire.**

Flammable Liquids

- **Locate above ground fuel storage tanks at least 50 feet away from buildings.**
- **Store small amounts of fuel in labeled regulation cans.**
- **Never store flammable liquids in glass jugs, bleach containers or food or drink containers.**
- **Store products in original containers in cool place out of the sun. Keep caps on tightly.**
- **Do not use gasoline, benzene, naphtha and such products as cleaning agents.**
- **Do not smoke when refueling or when fuel vapours are present.**
- **Provide a stable surface for propane tanks to sit on and store tanks 25 feet from nearest building.**

Spontaneous Combustion

- **Do not store wet hay.**
- **Check stored hay for warm spots. If the temperature reaches 81C (175F), remove from storage.**
- **With silage, too little moisture may be the problem. Watch for heating danger signs such as heat, vapour, steaming, smoke or a charred tobacco smell.**

Lightning

- **Make sure that you have a good lightning protection system on your farm.**
- **A good protection system includes air terminals, conductor cables, connecting clamps and grounds that provide an unbroken flow to ground. This system should be checked each year.**
- **Metal sided buildings should be grounded even if there is no electrical service in the building.**

Farm Machinery

- **Have a no smoking policy around machinery operation.**
- **Never use non-standard gas caps (caps from other machines, rags or plastic) on machinery.**
- **Watch for and repair leaks in fuel lines, carburetors, pumps and filters.**
- **When using flammable materials or procedures work in a well ventilated area away from materials that could be ignited by a spark.**
- **Keep machinery properly lubricated and adjusted to minimize friction.**